



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,402	07/26/2006	Takatsugu Yamada	XA-10623	7032
181	7590	12/01/2008	EXAMINER	
MILES & STOCKBRIDGE PC 1751 PINNACLE DRIVE SUITE 500 MCLEAN, VA 22102-3833			JOHNSON, PHILLIP A	
ART UNIT	PAPER NUMBER	3656		
NOTIFICATION DATE		DELIVERY MODE		
12/01/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

[ipdocketing@milesstockbridge.com](mailto:ipdocketing@milesstockbridge.com)  
[sstiles@milesstockbridge.com](mailto:sstiles@milesstockbridge.com)

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,402	<b>Applicant(s)</b> YAMADA ET AL.
	<b>Examiner</b> PHILLIP JOHNSON	<b>Art Unit</b> 3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

#### Status

- 1) Responsive to communication(s) filed on 10 October 2008.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 7/26/06
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election with traverse of Species 7 in the reply filed on October 10, 2008 is acknowledged. The traversal is on the ground(s) that The instant application is a PCT National Stage application and, as such, is governed by the Unity of Invention standard under the PCT. See 37 C.F.R. §§ 1.499 and 1.475, and M.P.E.P. § 1893.03(d). The election requirement is evidently based on U.S. election practice under 37 C.F.R. §§ 1.141 - 1.146, and is therefore improper. The Applicant's arguments are found persuasive. The Election/Requirement is hereby withdrawn.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 - 13 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Specifically, claim 1 recites the limitation "a possible flexural amount of the elastic member in the preload portion is converted into a rotation angle B." This is considered indefinite language, as the term "possible" does not definitively require that the "flexural amount of the elastic member in the preload portion" has to be "converted into a rotation angle B."

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1, 3 – 7 and 9 – 11, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Duval et al. (USP 6,343,993).** Duval et al. discloses (Fig. 12) all of the limitations of a similar device comprising: a female shaft (2) and a male shaft (1); torque transmitting portions (34 and 35) that are respectively disposed on an outer surface of the male shaft and on an inner surface of the female shaft; a preload portion composed of a rolling member, or at least one spherical body (3) that is disposed between the outer surface of the male shaft and the inner surface of the female shaft at a different position from a position where the torque transmitting portions are located; an elastic member (134) that is disposed adjacent to the rolling member in the diametral direction; the torque transmitting portions are composed of a projection elongated in the axial direction and having a substantially arc sectional shape (arced corners of 34 represent an arc sectional shape) formed on the outer surface of the male shaft and a groove elongated in the axial direction and having a substantially arc sectional shape (arced corners of 35 represent an arced sectional shape) formed on the inner surface of the female shaft; wherein the torque transmitting portions do not come in contact with each other continuously in the axial direction upon transmitting no

torque; wherein the torque transmitting portions are composed of a spline-fitting structure or a serration-fitting structure formed on the outer surface of the male shaft and the inner surface of the female shaft; wherein the preload portion has a first axial groove (141) disposed on the outer surface of the male shaft and a second axial groove (142) disposed on the inner surface of the female shaft opposite to the first axial groove, and the rolling member and the elastic member are disposed between the first axial groove and the second axial groove; wherein a plurality of preload portions are disposed between the male shaft and the female shaft, and the plurality of transmitting portions are disposed between adjacent preload portions; wherein the preload portions are disposed in the circumferential direction with an interval of 120 degrees having the torque transmitting portions in-between (C8, L47); wherein the torque transmitting portions are disposed at the center in the circumferential direction between the preload portions; a gap in the torque transmitting portions; the rotation angle A (corresponding to gap distance between 34 and 35) is less than the rotation angle B (corresponding to the elastic deflection of 134) upon transmitting no torque (A is zero since relative rotation between male and female shafts is zero, and B is greater than zero since there would be some deflection of 134 under preload)

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**7. Claim 8, as best understood, rejected under 35 U.S.C. 103(a) as being unpatentable over Duval et al.** Duval et al. discloses all of the limitations as set forth above, including wherein the preload portions are disposed in the circumferential direction with an interval of 180 degrees (see Fig. 11).

Duval et al. fails to disclose torque transmitting portions in-between.

Duval et al. teaches the use of torque transmitting portion in-between preload portions for the purpose of providing continued torque transmission in the event the preload portions experience failure (Fig. 12; C8, L34 – 38).

It would have been obvious to one of ordinary skill in the art at the time of the invention of modify the device of Duval et al. to include torque transmitting portions in-between preload portions, as taught by Duval et al., for the purpose of providing continued torque transmission in the event the preload portions experience failure.

**8. Claim 12, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Duval et al. in view of Geyer et al. (USP 6,474,868).** Duval et al discloses all of the limitations as set forth above, including an elastic member composed of a rubber member that is used to eliminate backlash attributed by gaps that exist between telescopically coupled male and female shafts. Duval et al. does not disclose wherein the elastic member is composed of a leaf spring.

Geyer et al. teaches the use of a leaf spring for the purpose of eliminating backlash attributed by gaps between the male and female shafts, created by dimensional variations.

Because both Duval et al. and Geyer et al. teach the use of an elastic member to eliminate backlash attributed by gaps between telescopically coupled male and female shafts, it would have been obvious to one having ordinary skill in the art at the time of the invention to substitute a rubber member for a leaf spring to achieve the predictable result of eliminating backlash attributed by gaps between telescopically coupled male and female shafts.

9. **Claims 13, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Duval et al. in view of Breese (USP 6,761,503).** Duval et al discloses all of the limitations as set forth in the above, but fails to disclose wherein a solid lubricant film is formed on the outer surface of the male shaft or the inner surface of the female shaft.

Breese teaches the use of a solid lubricant (50) formed on the inner surface of a female shaft for the purpose of minimizing the amount of force that is required to effect relative movement with respect to a telescopically coupled male shaft (C1, L65 – 67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a solid lubricant formed on the inner surface of a female shaft, as taught by Breese, in the device of Duval et al for the purpose of minimizing the amount of force that is required to effect relative movement with respect to a telescopically coupled male shaft.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILLIP JOHNSON whose telephone number is (571)270-5216. The examiner can normally be reached on MON - FRI, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Phillip Johnson/  
Examiner, Art Unit 3656

/Richard WL Ridley/  
Supervisory Patent Examiner, Art Unit 3656

Application/Control Number: 10/587,402

Art Unit: 3656

Page 8